Application No.: 09/975029

Docket No.: SMQ-075
(P6309)

REMARKS

Upon entry of this paper, claims 1-22 are pending. No claims are amended. No new matter has been added.

REQUEST FOR WITHDRAWAL OF FINALITY OF REJECTION

Applicant respectfully requests the Examiner to withdraw the finality of the rejection pursuant to MPEP §706.07(a). Previously, claims 1-22 were rejected under 35 U.S.C. §112, first paragraph and second paragraph, as failing to comply with the written description requirement and being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The application was not examined on its merits. Applicant has filed a response replying to the rejection made under 35 U.S.C. 112, and the Examiner responded with a final rejection citing new grounds pursuant to 35 U.S.C. §102 and 35 U.S.C. §103. As this is the first time the Examiner has examined the application for its merits, the Applicant believes that there has not been a clear issue developed between the Applicant and the Examiner to reach a final rejection. The Applicant respectfully requests the Examiner to reconsider and withdraw the finality of the rejection.

Claim Rejections Pursuant to 35 U.S.C. §102(b)

The Examiner rejected claims 1-4 pursuant to 35 U.S.C. 102(b) as being anticipated by Brocker et al. (U.S. Patent No. 5,365,606, hereafter Brocker). For the reasons set forth below, the Applicant respectfully traverses these rejections.

Summary of the Claimed Invention

The claimed invention provides a method of inserting a virtual layer between the user of a host electronic device and a network storage medium. The method hides the location of the real storage volumes and hence enables real-time data relocation. Therefore, reconfiguration and repair of the storage system may be undertaken with minimal disruption of data access to the user. The claimed invention provides duplicate copies of data which remain accessible through the virtual layer even during reconfiguration or repair of the storage system.

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Summary of Brocker

Brocker discusses a virtual software machine providing a virtual execution environment in a target computer for application software programs having execution dependencies incompatible with a software execution environment on the target computer. Brocker is focused on solving the problem when application programs written for the source computer cannot be run on the target computer because the source computer and target computer are incompatible at the hardware and/or software level. Brocker does not disclose how to provide continual access to data during hardware failure periods.

Argument

As set forth in MPEP § 2131, "[a] claim is anticipated [under 102(b)] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." The Applicant respectfully submits that, under this standard, Brocker does not disclose every element in of claims 1-4.

In claim 1, the Examiner suggests that Brocker discloses the step of "providing a plurality of controllers interfaced with said network that control access to said storage devices" in Figure 4 group controllers and column 7 lines 12-33. However, the controllers in Brocker are for use in connection with a group of terminal emulators, not for controlling access to multiple storage devices. Applicant also points out that claim 1 requires the controllers be interfaced with a network and that element is also missing from Brocker.

Similarly, Brocker does not disclose the step of "determining with said virtual interface a destination for said one of a data read requests and a write requests, said destination being one of said plurality of controllers." The claimed invention requires a step of providing a virtual interface on a host electronic device that provides an interface between the host electronic device and a plurality of storage devices. The Examiner cited Brocker column 3 lines 10-50 to suggest that Broker discusses this same step. However, the cited section discusses a virtual interface system which is an alternative execution environment embedded on a target system and not an interface between a host electronic device and a plurality of storage devices. Therefore, what Brocker discloses is very different from the claimed invention. With the same reasoning,

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Brocker also does not disclose the step of "sending from said virtual interface said one of a data read requests and a write requests to the determined destination controller."

The Examiner also suggests that Brocker discloses the element of a network having a host electronic device and a plurality of storage devices with a storage medium in Figure 3, the abstract and column 2, lines 45-51. However, there is no plurality of storage devices in the cited reference. Brocker discloses an invention using a plurality of independent processes, which is not the same as a plurality of storage devices.

Claims 2-4 are dependent claims of claim 1, and therefore include all the elements of claim 1 for which Brocker does not disclose several elements. Accordingly, the Applicant respectfully requests the Examiner to reconsider and withdraw the rejections and allow claims 1-4.

Claim Rejections Pursuant to 35 U.S.C. §102(e)

The Examiner rejected claims 13-22 pursuant to 35 U.S.C. 102(e) as being anticipated by Grun (U.S. Patent No. 6,272,591 B2, hereafter Grun). For the reasons set forth below, the Applicant respectfully traverses these rejections.

Summary of Grun

Grun teaches a RAID device for striping a data block across N disk drives. Upon receiving a request, the RAID device creates multiple virtual channels to the host device. The channels are then used to stripe data across multiple disk drives.

Argument

The Examiner rejected claim 13 on the basis that Grun teaches "a software facility for creating a virtual interface". However, the cited language is not the entirety of claim 13. Claim 13 specifically indicates that the software facility in included on the apparatus which is interfaced with a network which includes multiple storage mediums. In other words, the apparatus includes a software facility for creating a virtual interface on the host electronic device for interfacing between the host electronic device and the plurality of storage devices (which can

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be RAID devices) over a network. In contrast Grun discusses the RAID device (holding the storage mediums) creating the virtual interfaces. The software facility for creating the virtual interface in Grun is located on the RAID device, not the host apparatus (see col 3 line 47-48, "RAID device 40 generates N virtual channels across direct connection 30). Accordingly, since all of the elements of independent claim 13 are not disclosed by Grun, Applicant requests the rejection be withdrawn.

Claims 14-18 are depended on claim 13 and include its elements. Applicant submits the claims should be allowed for the same reasons as set forth above.

Claim 19 (upon which claims 20-21 are dependent) is a medium claim roughly corresponding to claim 13. Claim 13 requires a software facility located on an electronic device separate from the plurality of storage mediums thereon. As set forth above, Grun lacks this element. Accordingly, Applicant requests the allowance of claims 19-21.

Claim 22 requires that the virtual logical unit hides the location of the network storage medium. The system of Grun requires the RAID device first receive a data request prior to creating the virtual channels used to transfer data from the host device to respective drives. Clearly if the original request is addressed to the RAID device it is not hidden. Since Grun fails to disclose all of the elements of Applicant's claimed invention, Applicant respectfully requests the allowance of claim 22.

Claim Rejections Pursuant to 35 U.S.C. §103(a)

The Examiner rejected claims 5-12 under 35 U.S.C. §103(a) as being unpatenable over Brocker et al. in view of Grun. For the reason set forth below, the Applicants respectfully traverse these rejections.

As set forth above, Brocker does not disclose a virtual interface on a host electronic device between the host electronic device and a plurality of storage devices. Brocker also does not include a plurality of controllers corresponding to the plurality of storage devices accessed over a network. The Examiner cited Grun as teaching a RAID controller, but Grun does not teach the missing elements of Brocker noted above.

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Accordingly, Applicant respectfully requests the Examiner to reconsider and withdraw the rejections and allow claims 5-12.

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CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this statement. However, if a fee is due, please charge our Deposit Account No. 12-0080, under Order No. SMQ-075 from which the undersigned is authorized to draw.

Dated: September 21, 2004

Respectfully submitted,

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